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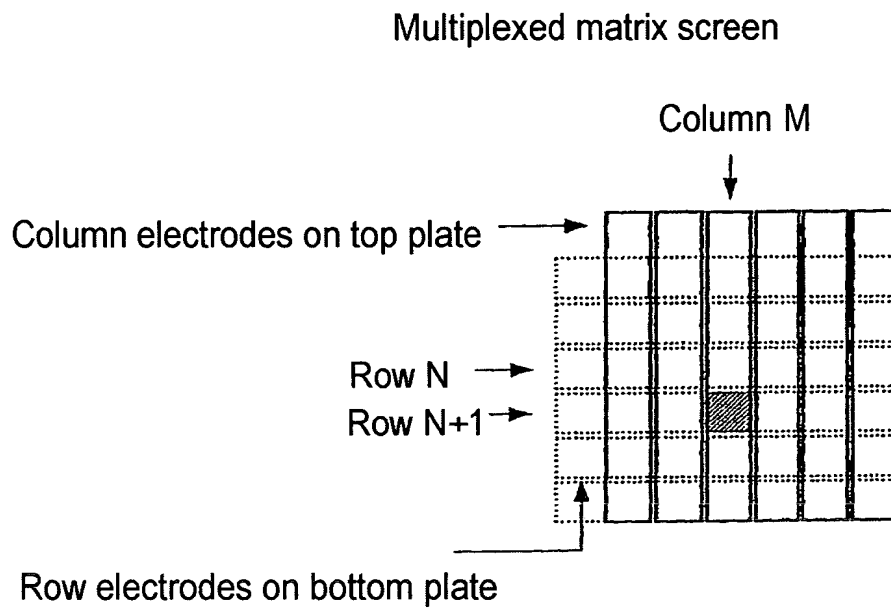


FIG.1

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## BiNem screen principles

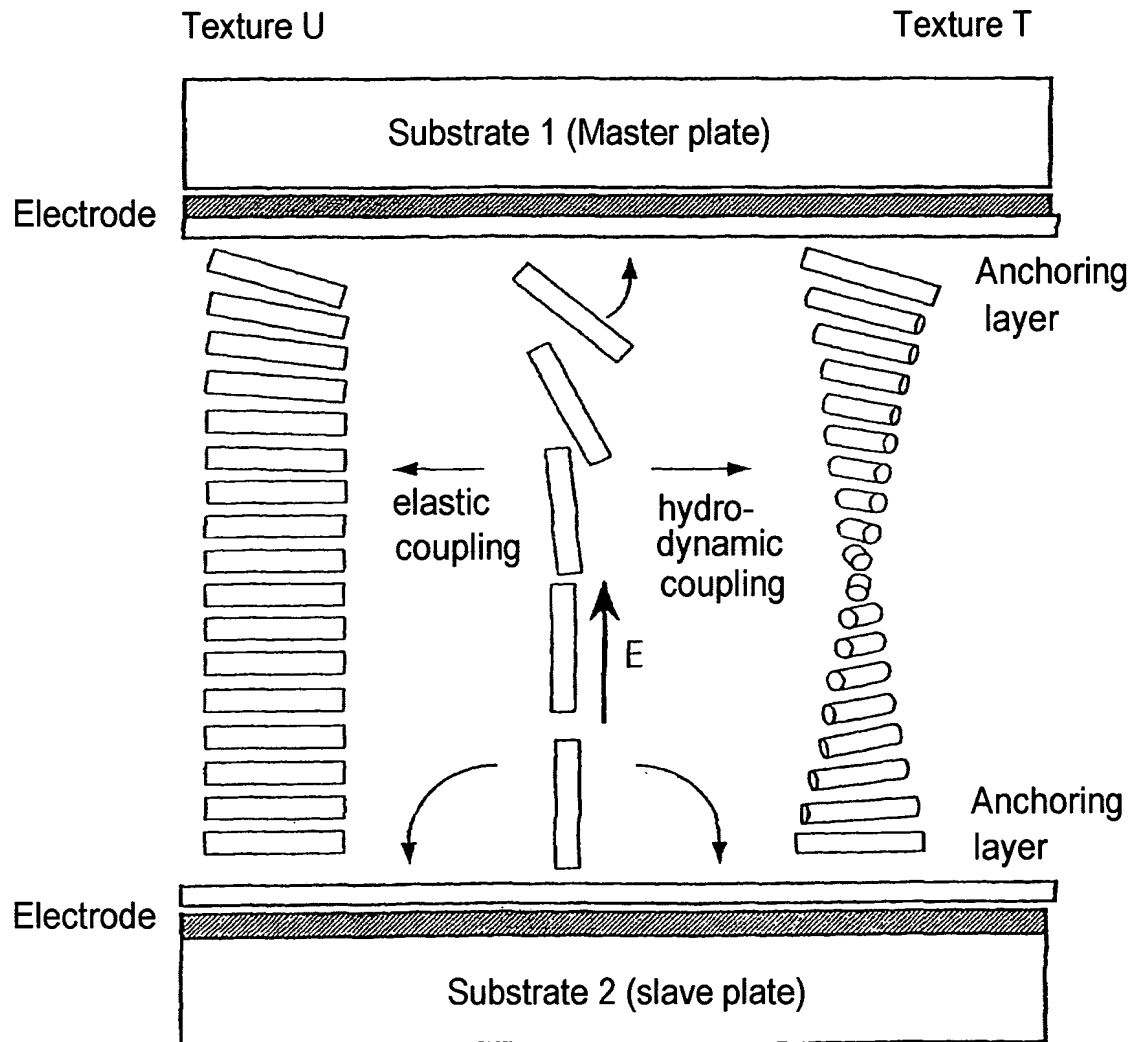


FIG.2

# Pixel switching signals

Write signals: switching to the twisted texture T

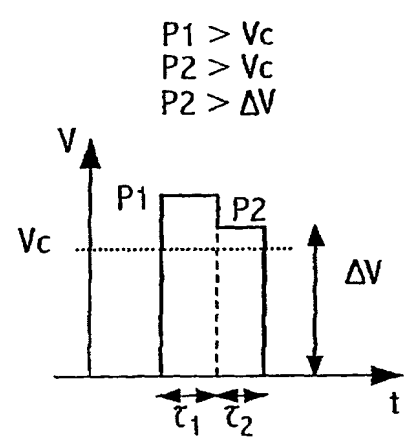


FIG.3a1

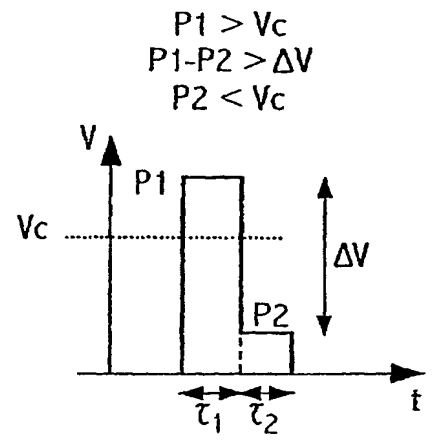
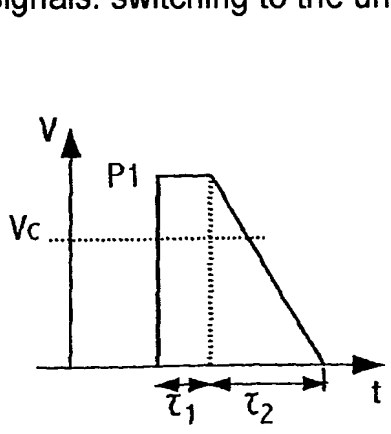


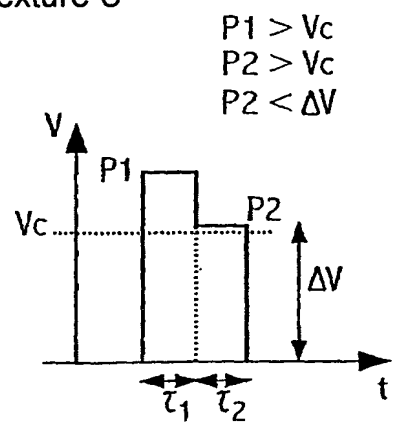
FIG.3a2

Delete signals: switching to the uniform texture U



Slow drop by ramp

FIG.3b1



Slow drop by staircase  
Two plateaus

FIG.3b2

FIG.3

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# Electrooptical behaviour of a BiNem pixel addressed by a two-plateau pulse

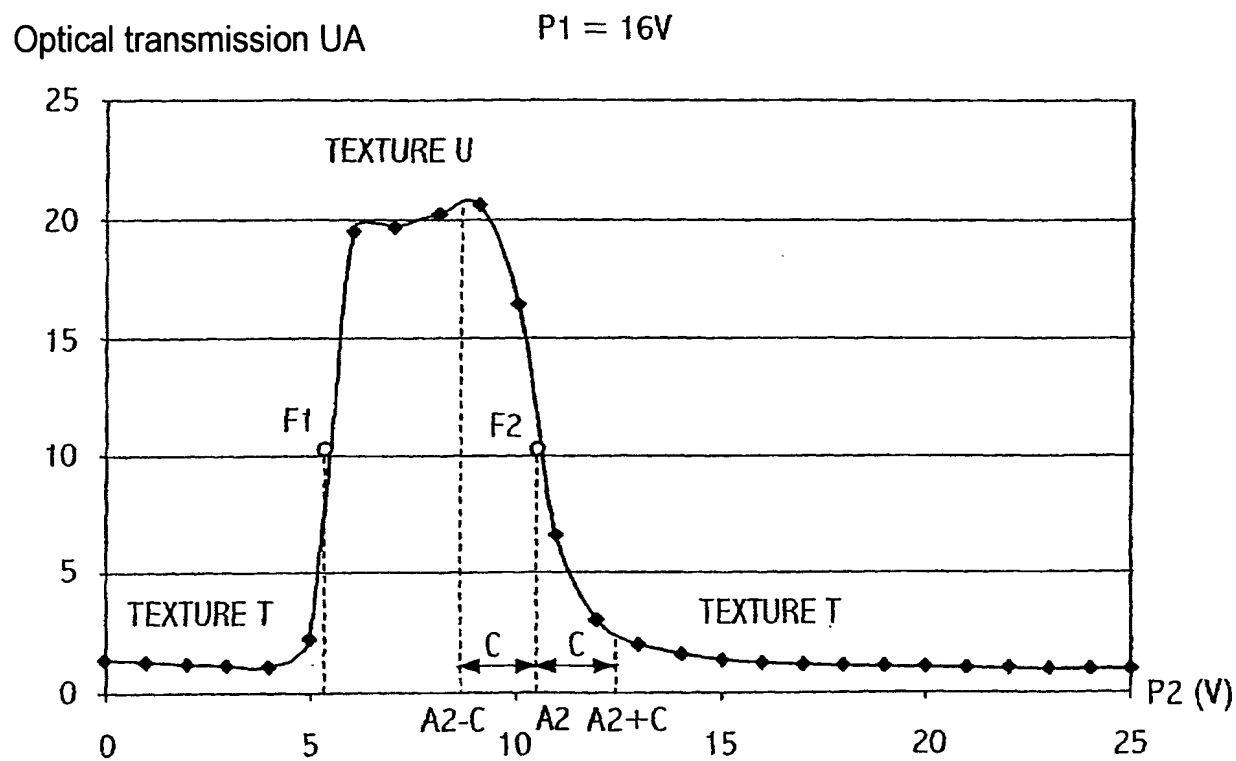


FIG.4

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**Writing or deleting as a function of the value  
of the second plateau across the pixel terminals  
and corresponding to the electrooptical curve of Fiigure 4**

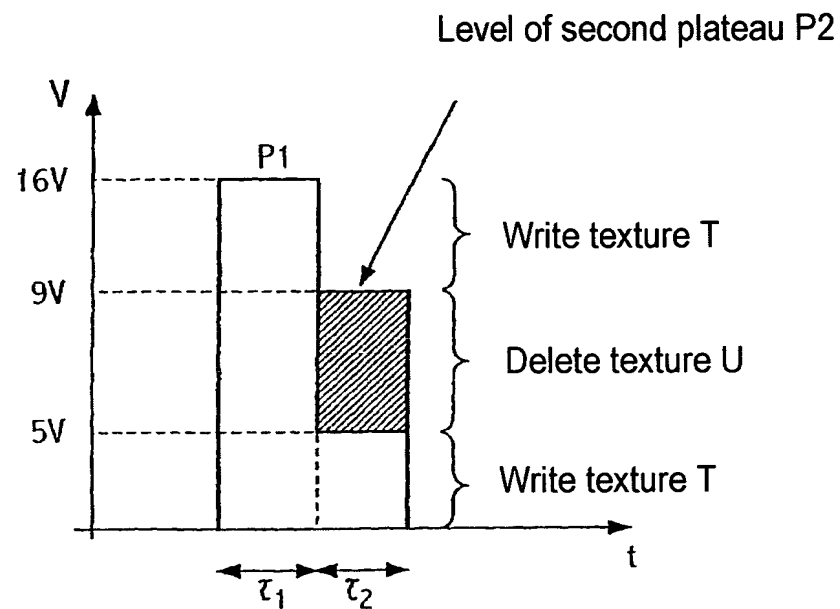


FIG.5

# **Signals applied to the electrodes**

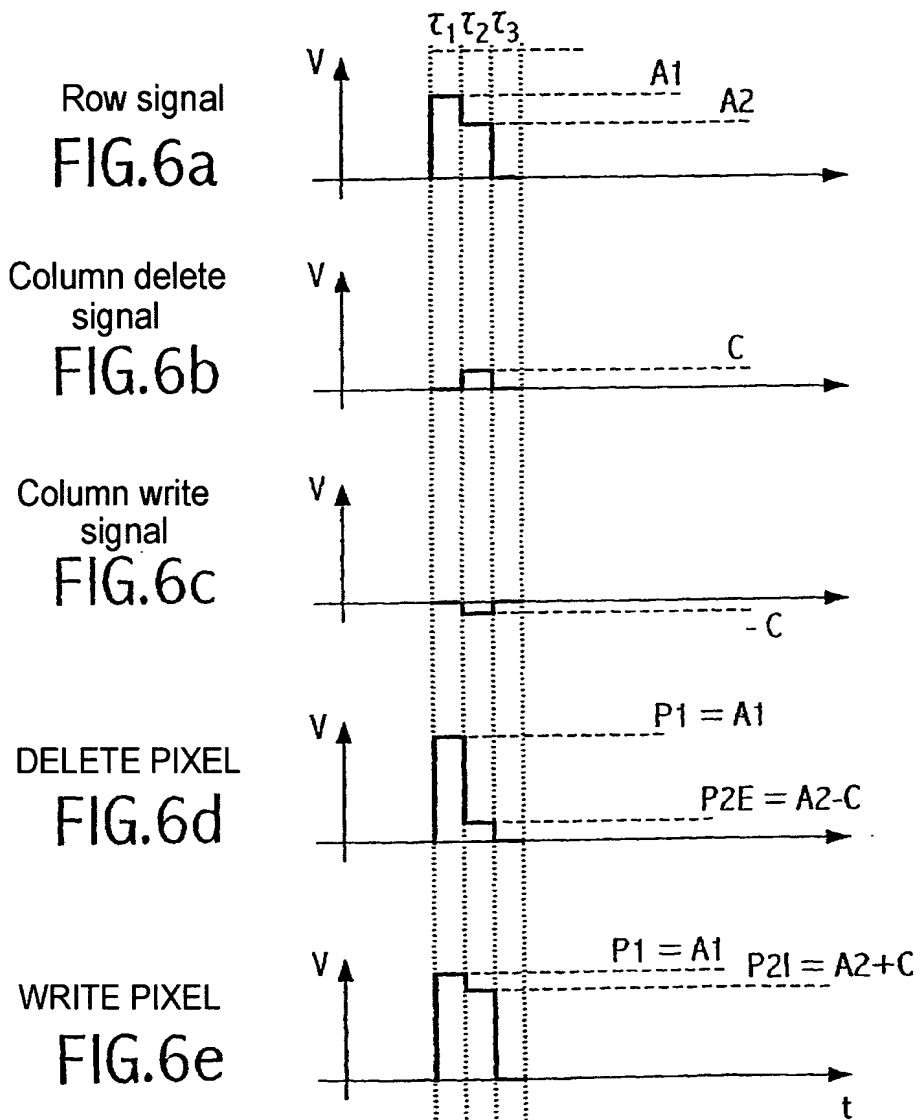
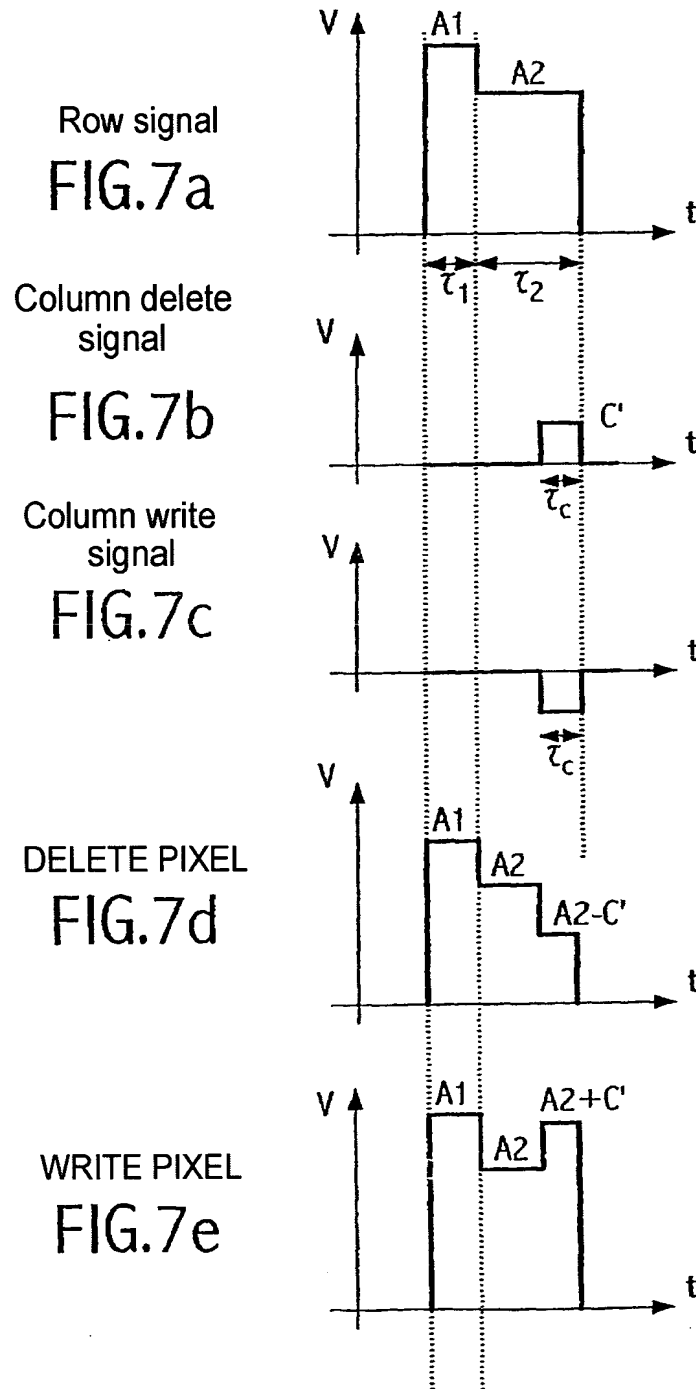


FIG. 6

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**Column signal waveform - Example 1**

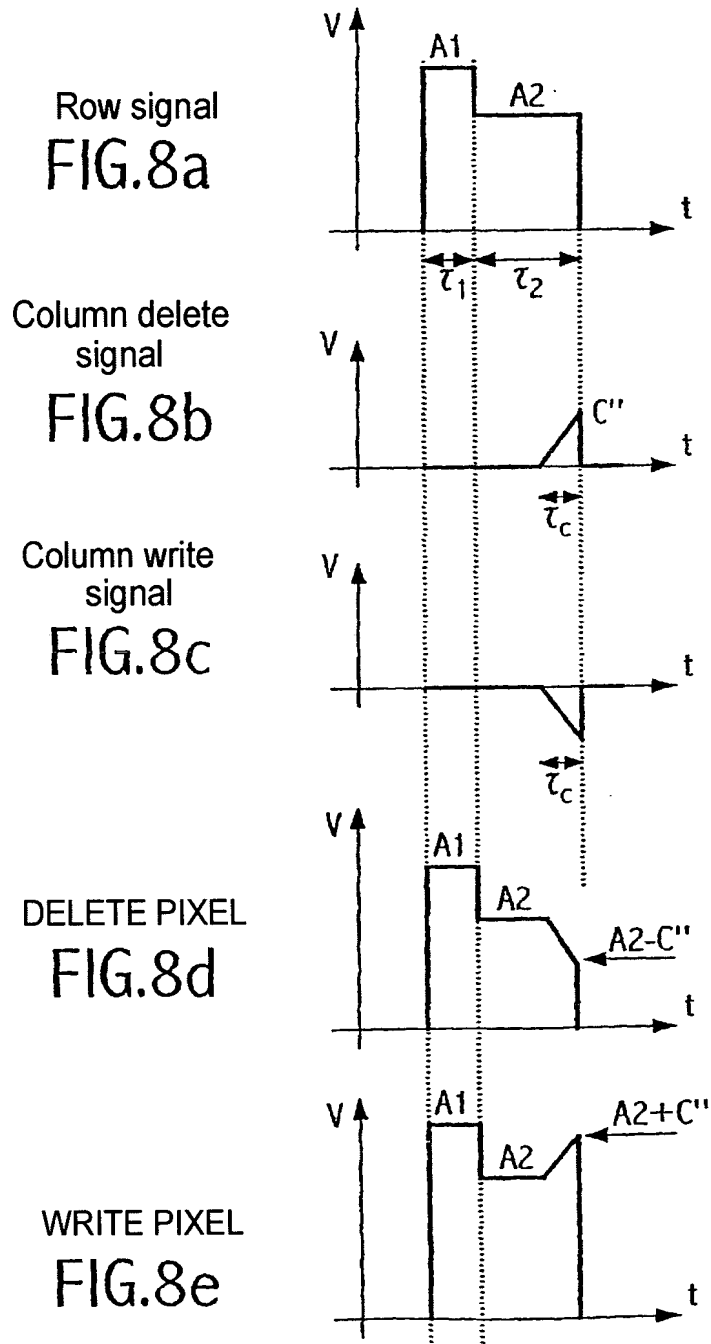
Column signal in the form of squarewave pulses



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**Column signal waveform - Example 2 - Illustration 1**

Column signal in the form of ramps

**FIG.8**

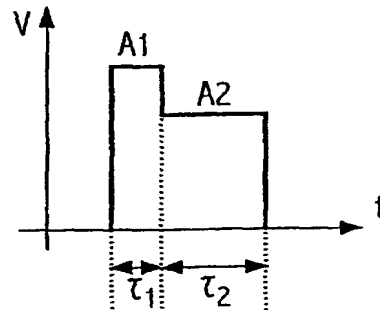


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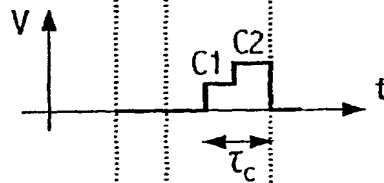
## Column signal waveform - Example 2 - Illustration 2

Column signal in the form of two plateaus

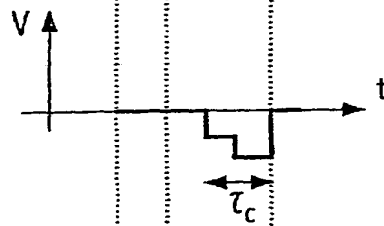
Row signal  
FIG.9a



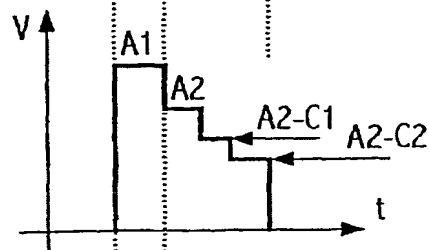
Column delete  
signal  
FIG.9b



Column write  
signal  
FIG.9c



DELETE PIXEL  
FIG.9d



WRITE PIXEL  
FIG.9e

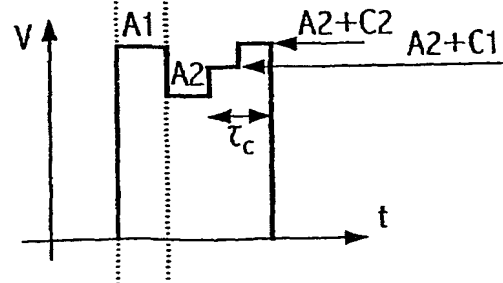


FIG.9

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**Symmetrical signals of zero mean value over row duration**  
**"row symmetrization"**

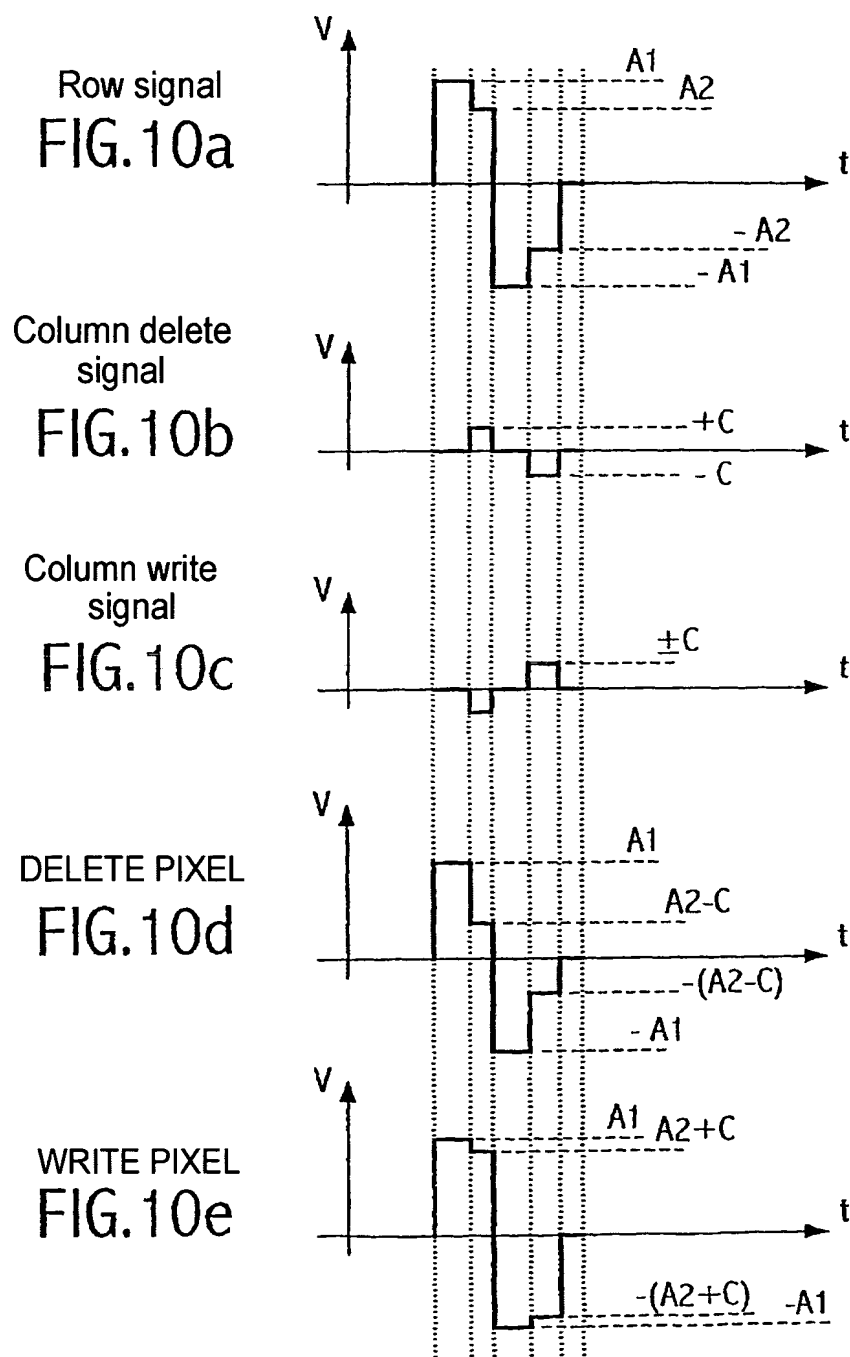


FIG.10

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**Signals symmetrized by changing polarity on each image**  
**"frame symmetrization"**

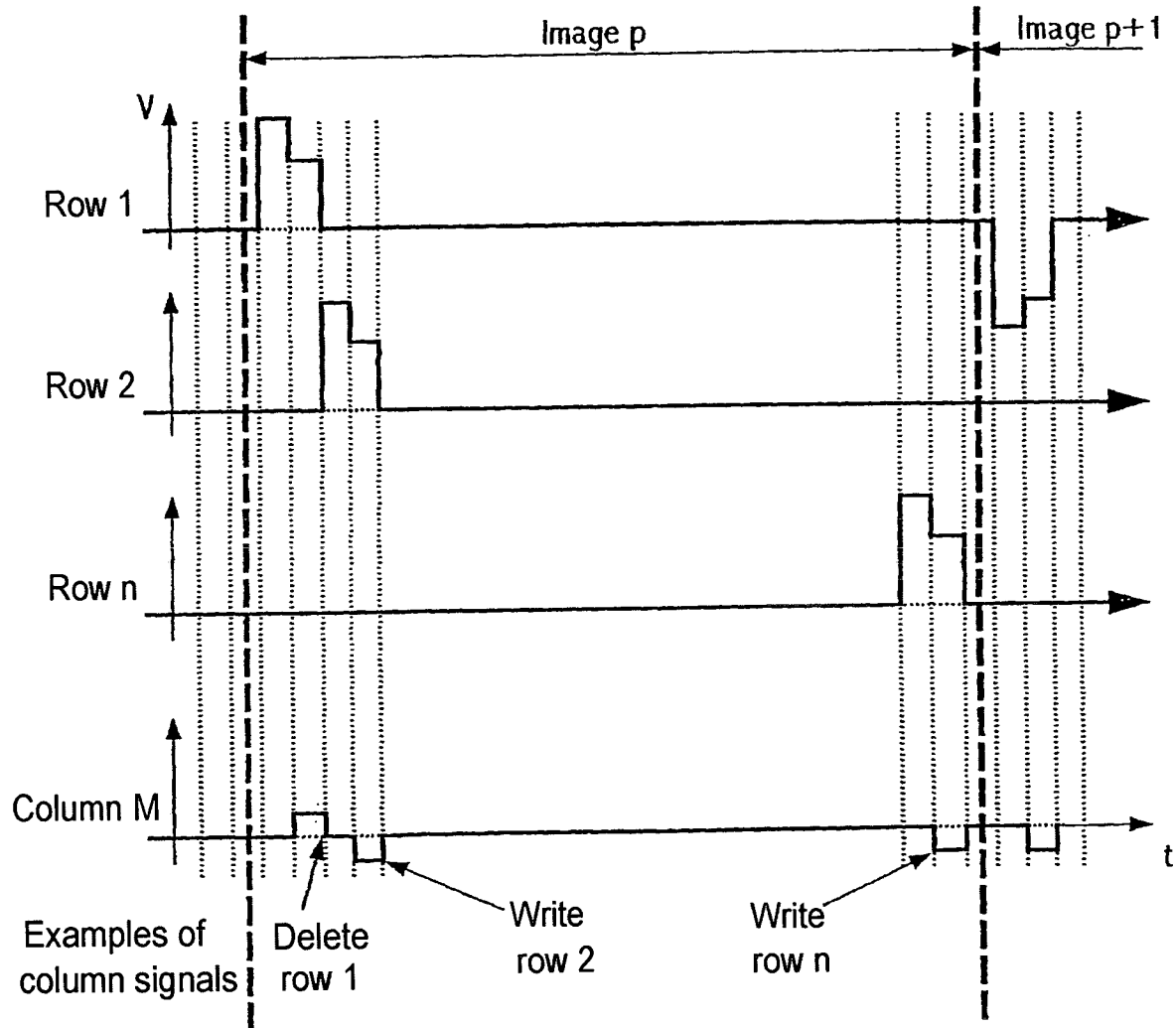
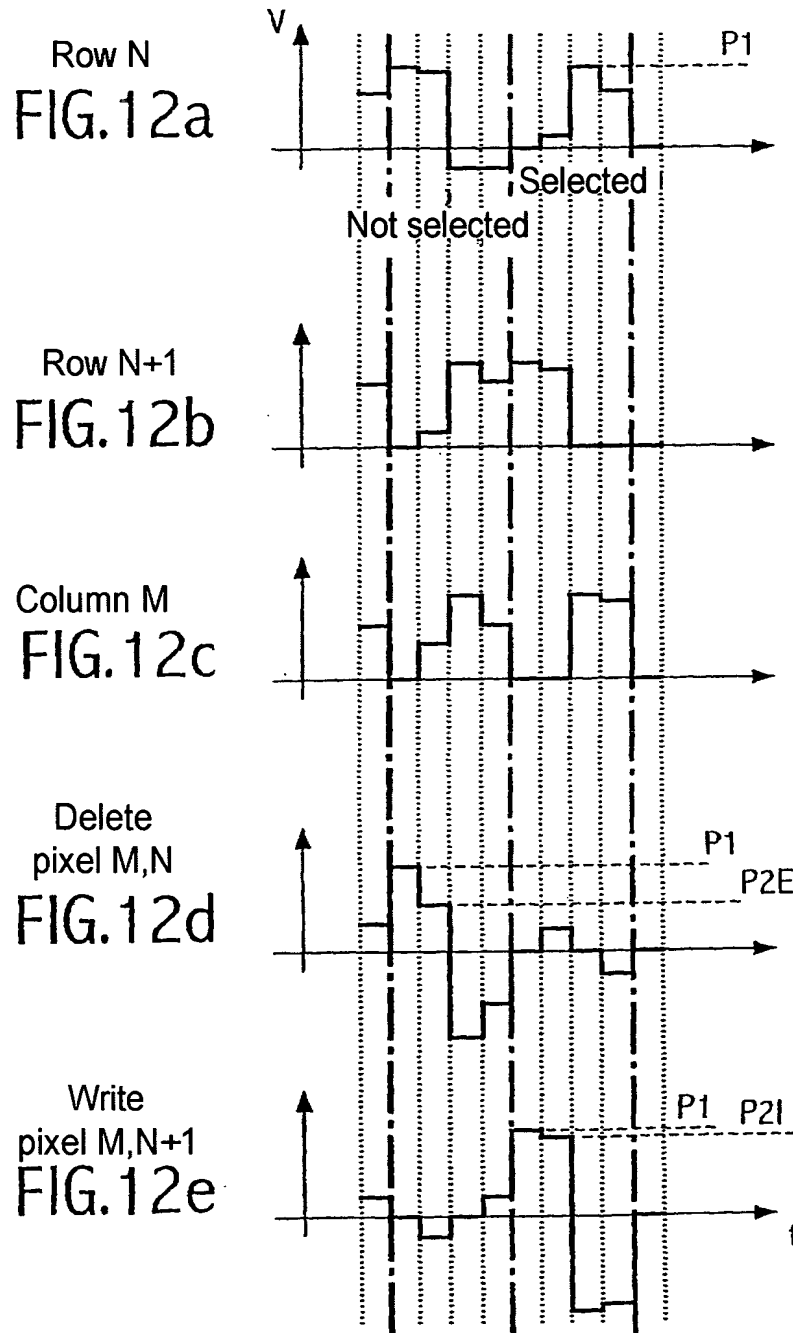


FIG.11

# Symmetrical signals of constant polarity and reduced excursion



The 5 row signal levels are:  $0$ ;  $(P2I-P2E)/2$ ;  $(P2I+P2E)/2$ ;  $P2I$ ;  $P1$ .  
 The 5 column signal levels are:  $0$ ;  $(P2I-P2E)$ ;  $P2E$ ;  $P2I$ ;  $P1$ .  
 The pixel voltages are:  $0$ ;  $\pm(P2I-P2E)/2$ ;  $\pm P2E$ ;  $\pm P2I$ ;  $\pm P1$ .  
 The rms interfering signal is:  $\tau_2(P2I-P2E)^2/4(\tau_1+\tau_2)$ .

FIG. 12

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# Addressing a BiNem screen with time overlap of row address pulses

Variant 1: consecutive rows - No symmetrization

Example of addressing 7 rows at a time

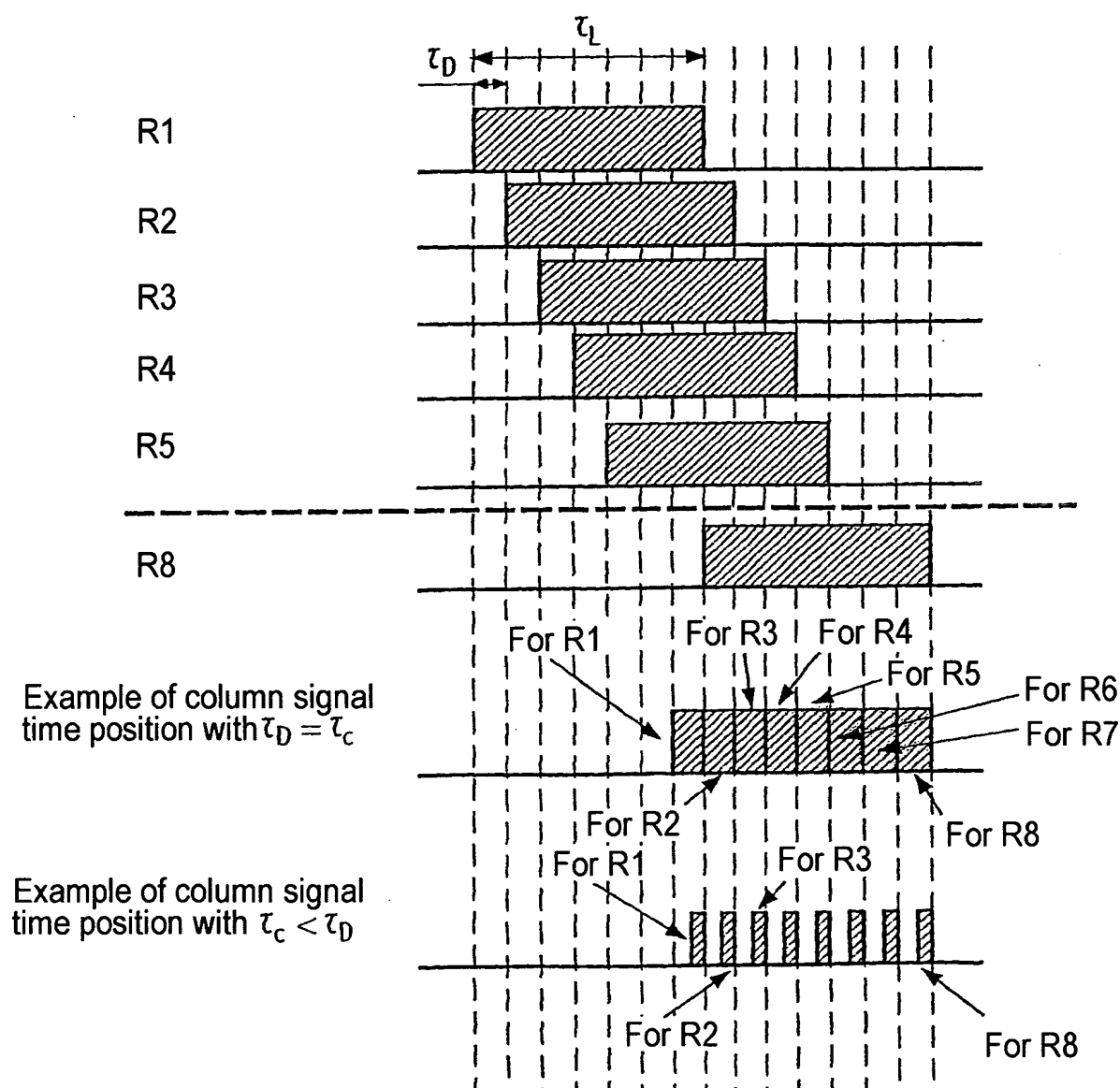


FIG.13

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## Addressing a BiNem screen with time overlap of row address pulses

Variant 1: consecutive rows - Frame symmetrization

Example of addressing 3 rows at a time

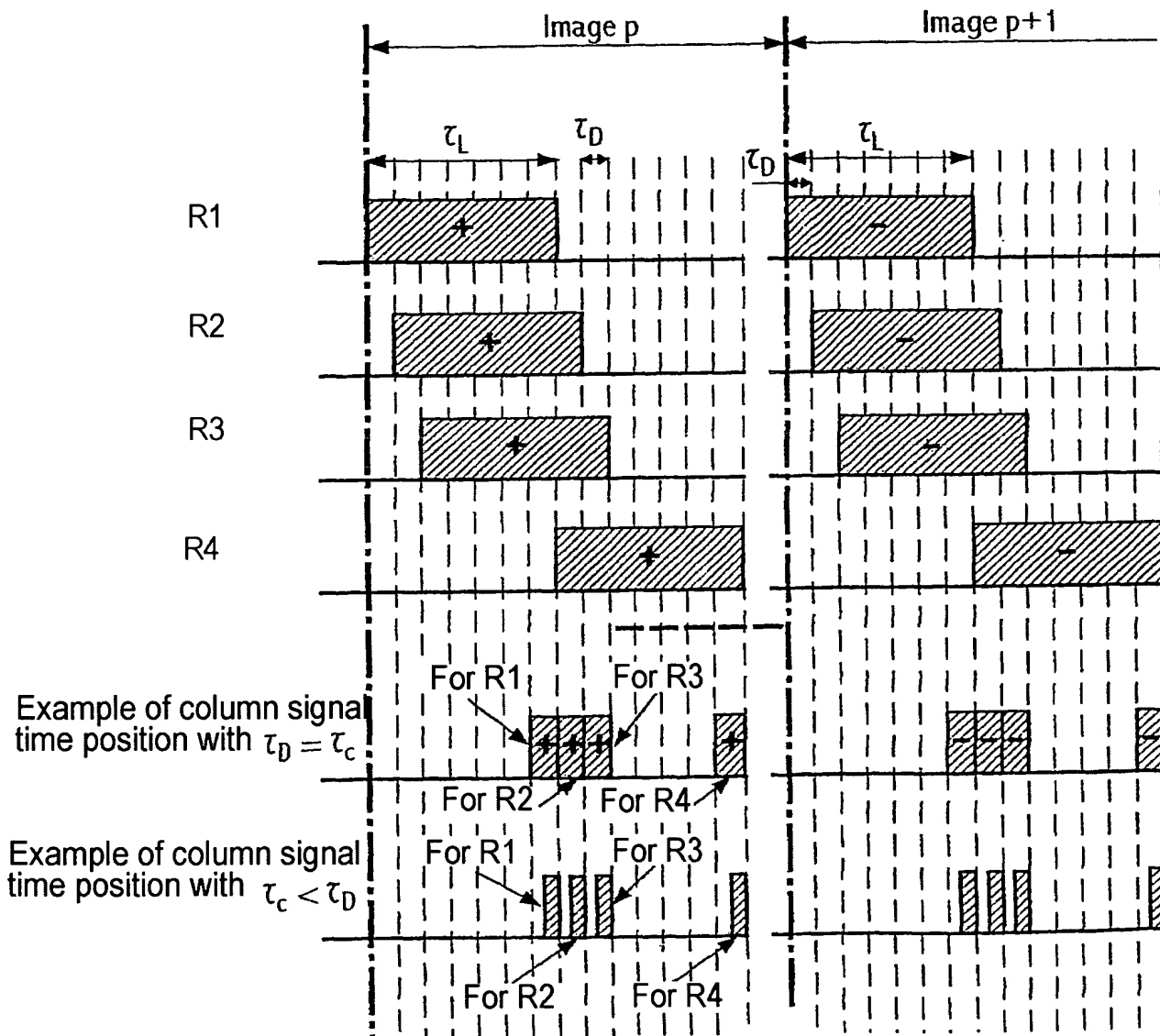


FIG.14

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## Addressing a BiNem screen with time overlap of row address pulses

Variant 1: consecutive rows - Row and frame symmetrization

Example of addressing 3 rows at a time

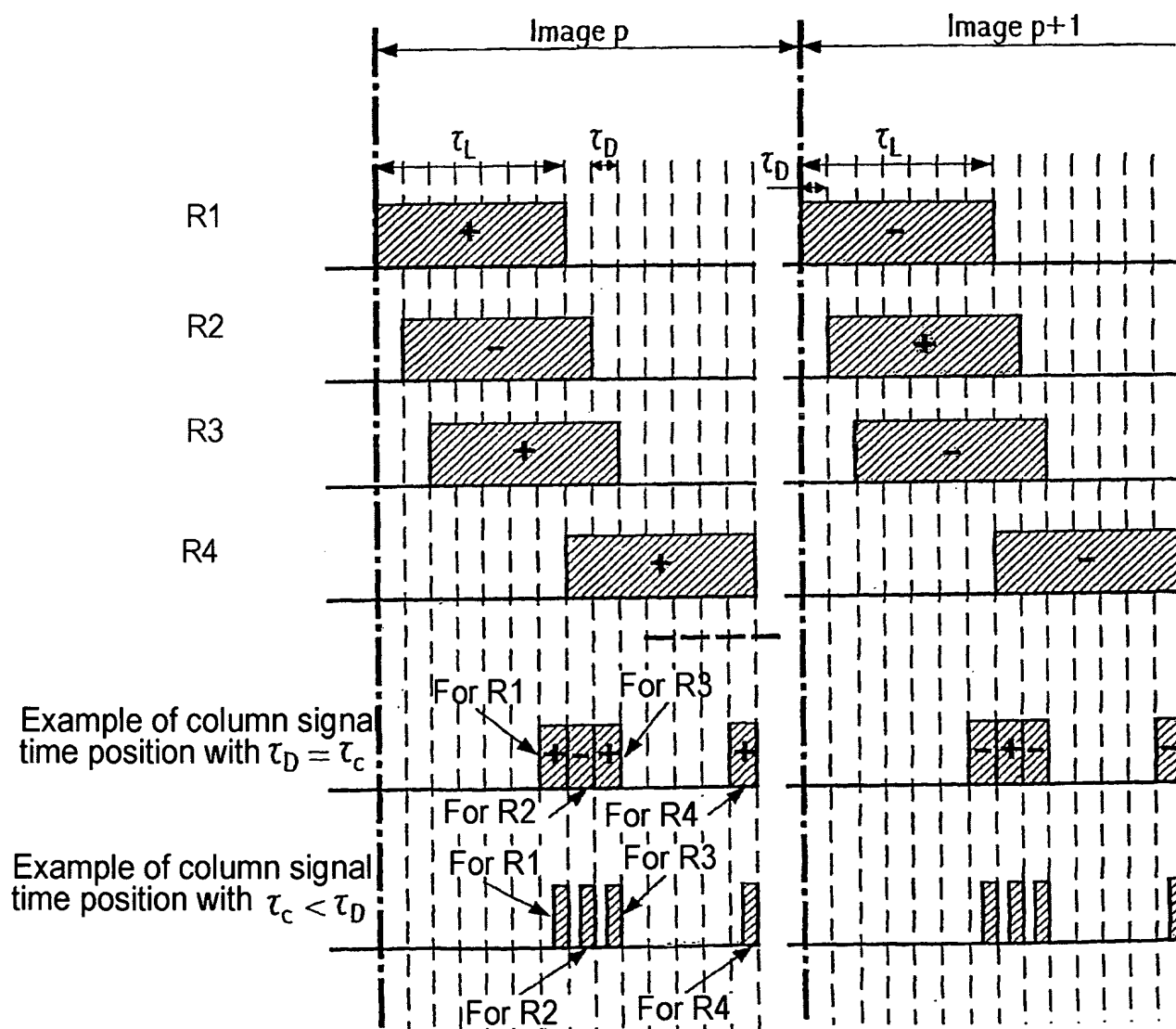


FIG.15

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# Addressing a BiNem screen with time overlap of row address pulses

Variant 1: consecutive rows - Total row symmetrization

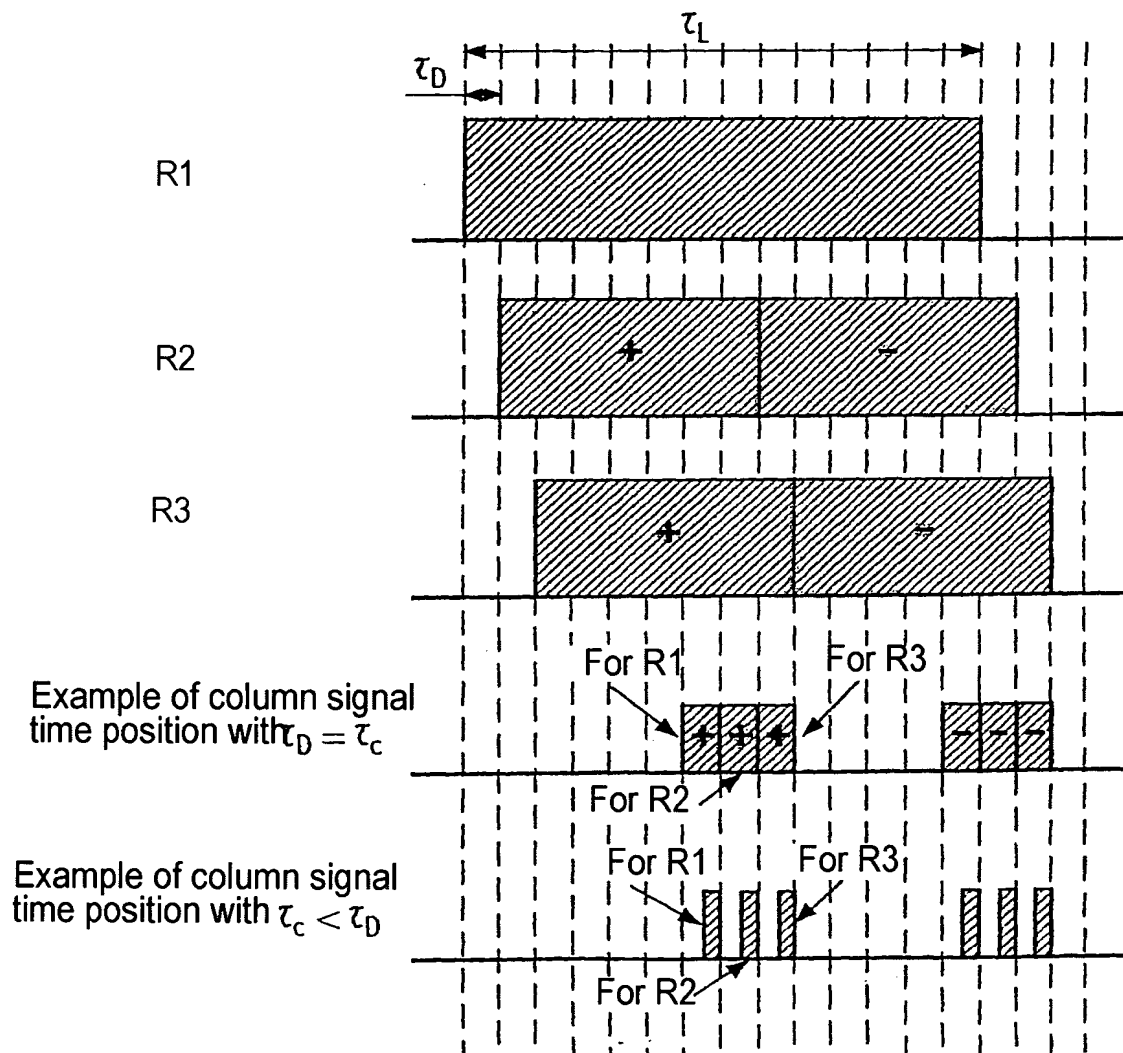


FIG.16



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# **Addressing a BiNem screen with time overlap of row address pulses**

Variant 1: consecutive rows - Partial row symmetrization

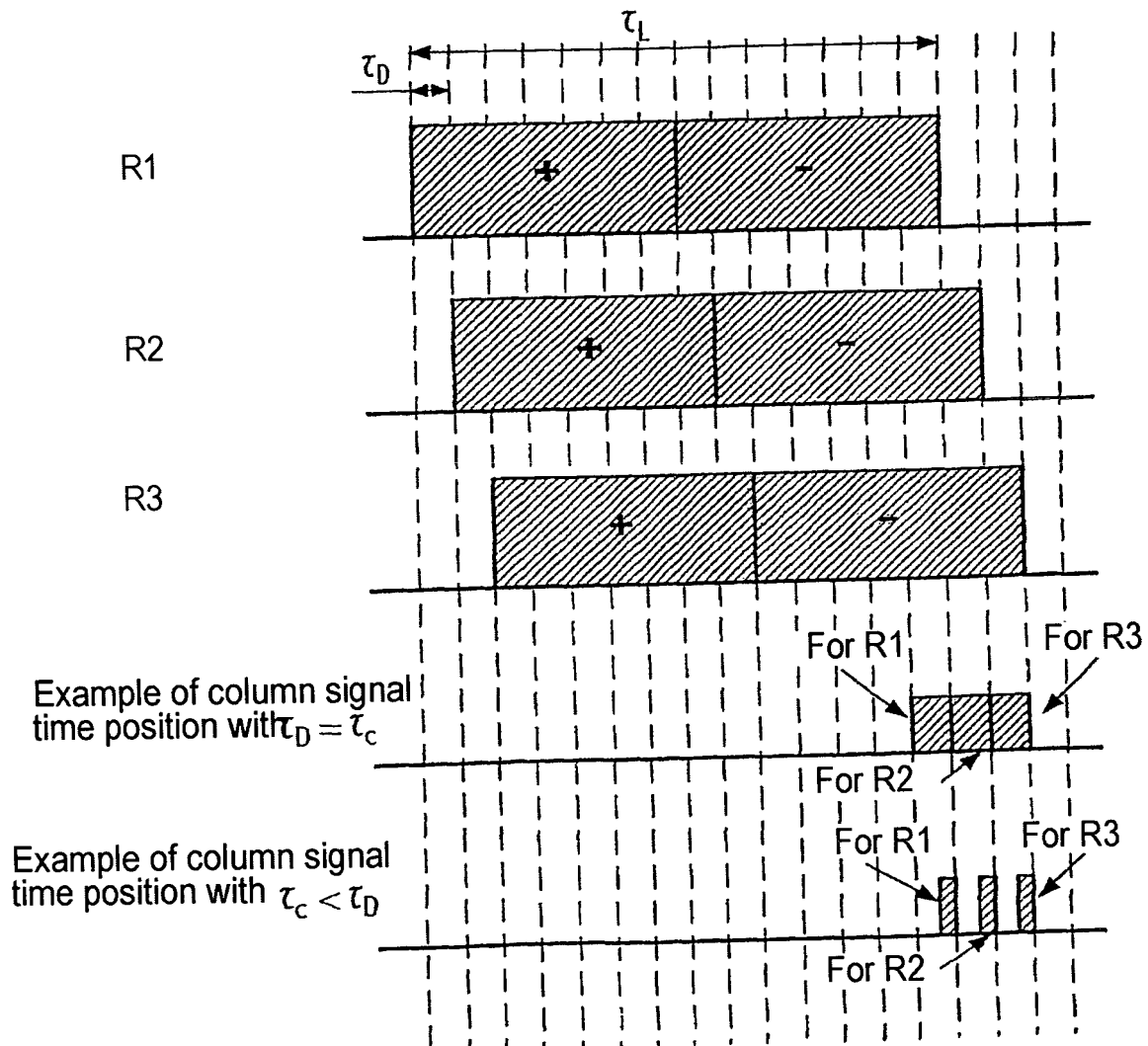


FIG.17

## Addressing a BiNem screen with time overlap of row address pulses

Variant 2: non-consecutive rows  
Example of addressing 3 rows at a time

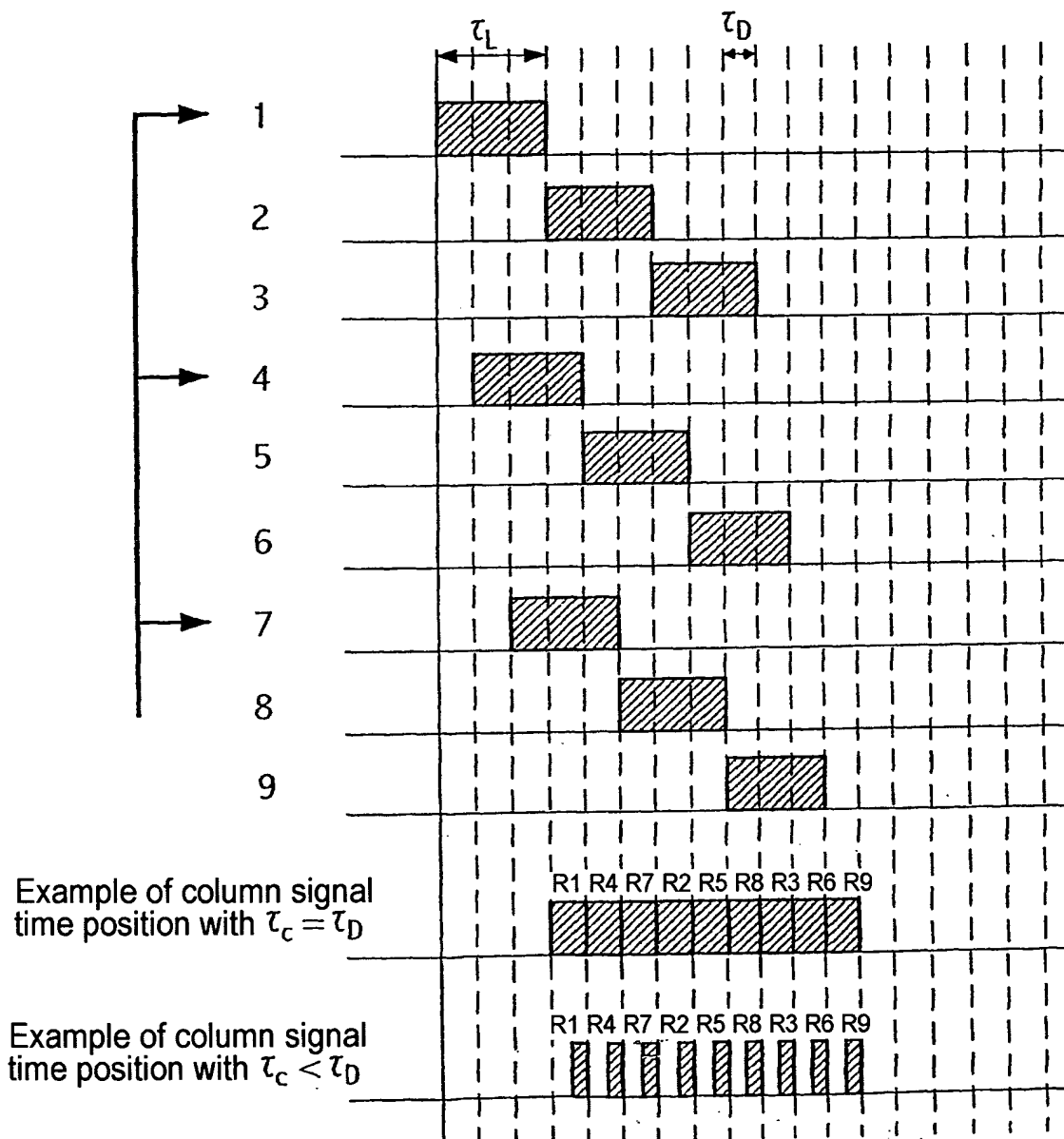


FIG.18

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# Addressing a BiNem screen with time overlap of row address pulses

Variant 1: consecutive rows

Two-plateau row signal - Squarwave column signal

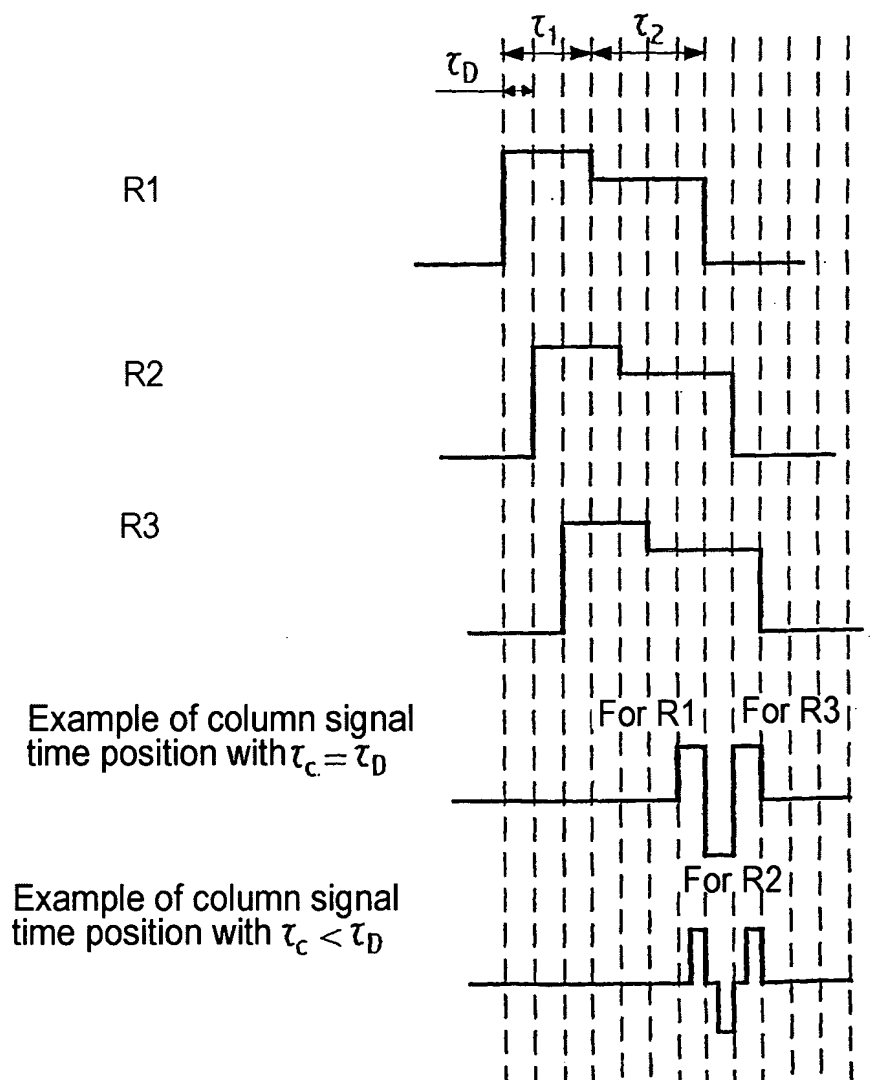


FIG.19

**Example of row pulse waveform for addressing  
a BiNem screen with time overlap of row address pulses**  
3 plateau row signal during anchoring breaking stage C

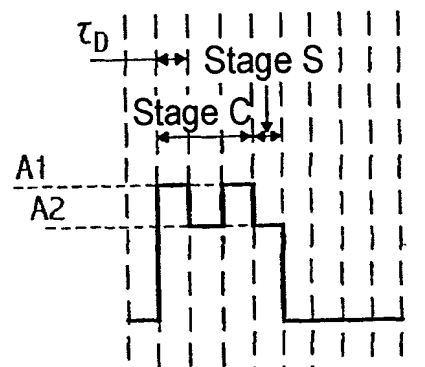


FIG.20

**Example of row pulse waveform for addressing  
a BiNem screen with time overlap of row address pulses**  
5 plateau row signal during anchoring breaking stage C

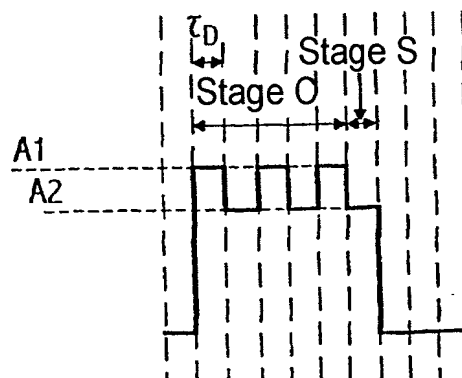


FIG.21